AMENDMENT OF THE CLAIMS

Please cancel claims 152-171 without prejudice or disclaimer, and add new rewritten claims 172-186 as follows:

Claims 1-171 (canceled)

Claim 172 (new): A relational database management system (RDBMS) comprising:

a query interface adapted to receive query statements from one or more client machines, and generating one or more query requests by disintegrating the query statement so that each said query request specifies a set of dimensions;

a query processing mechanism for processing each query request received from said query interface;

a query handling mechanism for handling said query requests;

a relational data store having relational tables for storing fact data, and a meta-data store for storing a dictionary containing dimension data; and

a multi-dimensional database (MDDB) for storing aggregated fact data in a multi-dimensional data structure;

wherein query statements from said one or more client machines are serviced by a method comprising the steps of:

(a) loading said meta-data and said fact data from said relational data store into said MDDB;

(b) calculating aggregated fact data from the fact data according to a multi-dimensional data aggregation process, and storing aggregated fact data in said MDDB;

(c) transmitting a query statement from said one or more client machines to said query interface, and generating one or more query requests by disintegrating the query statement so that each said query request specifies a set of dimensions;

(d) said query handling mechanism

(i) receiving each query request,

(ii) extracting the set of dimensions associated with said query request,

(iii) using said dimensions to retrieve aggregated fact data from said MDDB, and

(iv) forwarding retrieved aggregated fact data to said query processing mechanism for subsequent processing, if needed; and

(e) said query processing mechanism processing said one or more query requests, and

(i) when said query processing mechanism determines that servicing said one or more query requests require data stored in said relational tables of said relational data store, then said query handling mechanism automatically routes said one or more query requests to said relational data tables, so that data is accessed from said relational tables and forwarded to said query processing mechanism for use in servicing said one or more query requests, in a manner transparent to said client machine, and

(ii) when said query processing mechanism determines that servicing said one or more query requests require aggregated data stored in said MDDB, then said query handling mechanism automatically routes said one or more query requests to said MDDB, so that aggregated data accessed from said MDDB and forwarded to said query processing mechanism for use in servicing said one or more query requests, in a manner transparent to said client machine.

Claim 173 (new): The RDBMS of claim 172, wherein said query handling mechanism comprises a first query handler operably coupled to said query interface, and a second query handler operably coupled to a first data communication interface; and

wherein said second query handler (i) receiving each query request from said first query handler, (ii) extracting a set of dimensions associated with said query request, (iii) providing said dimensions to a data loading mechanism so that said data loading mechanism can retrieve aggregated fact data from said MDDB, and (iv) forwarding retrieved aggregated fact data to said query processing mechanism for subsequent processing, if needed.

Claim 174 (new): The RDBMS of claim 173, wherein said data loading mechanism loads said meta-data and said fact data from said relational data store into said MDDB by way of a second data communication interface.

Claim 175 (new): The RDBMS of claim 172, wherein after data loading operations conducted during step (a), step (b) comprises initially aggregating fact data along at least one of the dimensions extracted from said dictionary, and storing aggregated fact data results in said MDDB.

Claim 176 (new): The RDBMS of claim 175, wherein during query servicing operations, step (e) further comprises aggregating the fact data on demand along additional dimensions extracted from said query request, and storing aggregated fact data results in said MDDB.

Claim 177 (new): The RDBMS of claim 172, wherein said multi-dimensional data structure comprises a plurality of data storage cells, and wherein step (a) further comprises indexing each said data storage cell with multiple dimensions, and storing either base data values or aggregated fact data values in said data storage cells.

Claim 178 (new): The RDBMS of claim 173, wherein during data loading operations, said data loading mechanism extracts dimension data from the dictionary in said meta-data store, and forwards the dimension data to said aggregation engine and configuring said MDDB using said dimension data.

Claim 179 (new): The RDBMS of claim 173, wherein during step (c) said query statement is an SQL-type query statement and each query request is an SQL-type query request.

Claim 180 (new): The RDBMS of claim 173, wherein said first data communication interface is a standard interface selected from the group selected from OLDB, OLE-DB, ODBC, SQL, API, and JDBC.

Claim 181 (new): The RDBMS of claim 174, wherein said second data communication interface is a standard interface selected from the group selected from OLDB, OLE-DB, ODBC, SQL, API, and JDBC.

Claim 182 (new): The RDBMS of claim 172, wherein said query interface is implemented in a module within said RDBMS.

Claim 183 (new): The RDBMS of claim 172, wherein during step (c) the user interacts with said client machine using a web-enabled browser to generate a natural language type query statement, and said natural language type query statement is communicated to said query interface.

Claim 184 (new): The RDBMS of claim 173, wherein during step (d) further comprises said second query handler transforming each query request so as to optimize the query request for efficient query handling.

Claim 185 (new): The RDBMS of claim 173, wherein during step (d) further comprises said second query handler mapping the data types of the query statement issued by said first query handler, and mapping a standard data type used to represent the query request issued by said first query handler into the data types used in said MDDB.

Claim 186 (new): The RDBMS of claim 172, wherein during step (e) said multi-dimensional aggregation process further supports the following operations:

(i) if the aggregated fact data required to service a given query statement is already pre-calculated and stored within said MDDB, then the pre-aggregated fact data is retrieved by said data handling mechanism and returned to said client machine via said query handler; and

(ii) if the required fact data is not already pre-aggregated and stored within said MDDB, then the required aggregated fact data is calculated on demand by said aggregation engine, and the aggregated fact data result is automatically forwarded to said client machine.